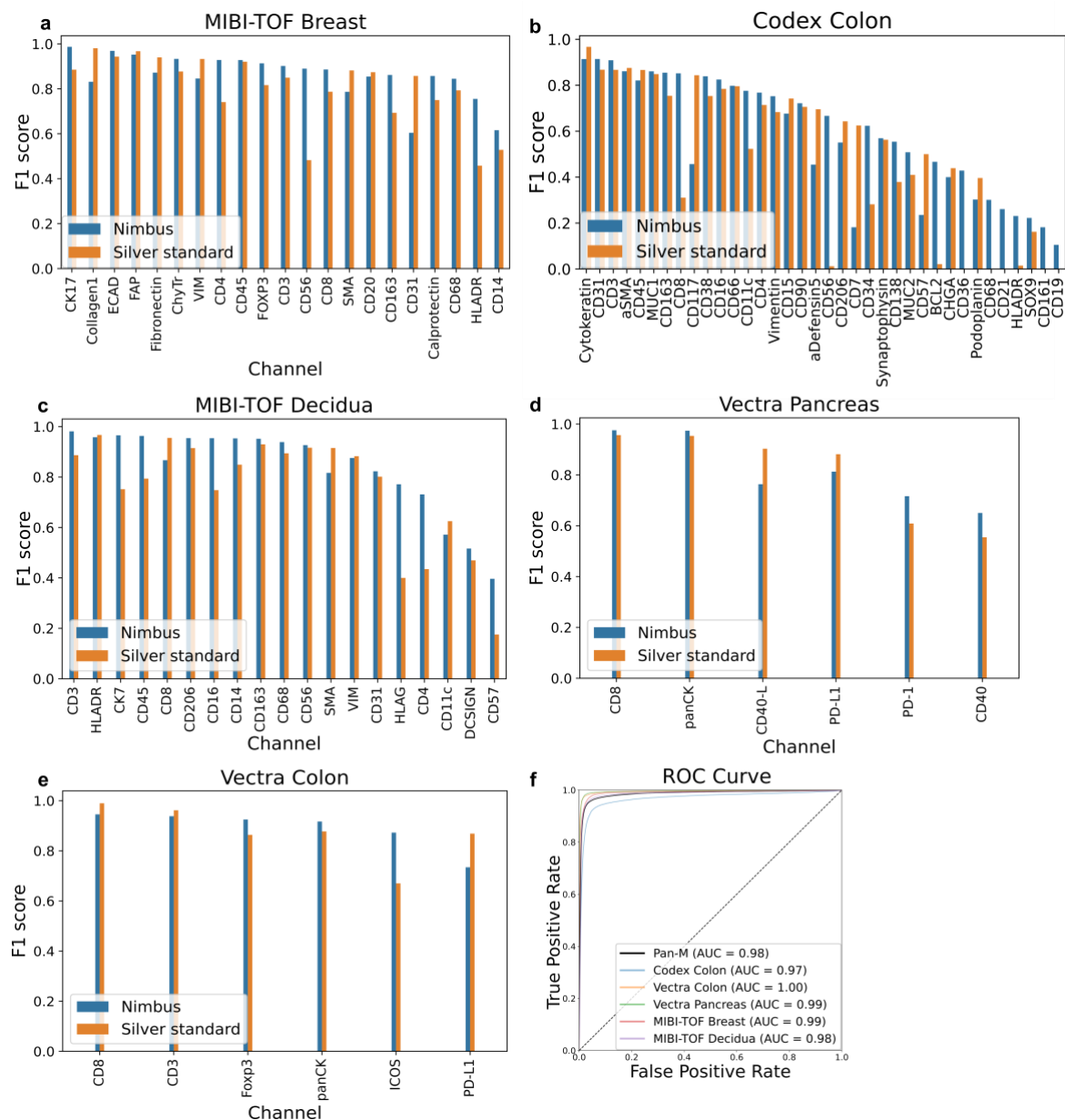


**Extended Data Fig. 1 | Pan-M conversion matrices and NIMBUS accuracy comparisons. a-c,** Conversion matrices used to transform the cell types in the MIBI-TOF Decidua, CODEX Colon and MIBI-TOF Breast to marker positivity estimates. **d,** Performance metrics of naïve vs. noise-robust training procedures. **e,** Performance metrics for models trained with additional nuclei and cell membrane channels (four channels) as input. **f,** Performance metrics for full resolution (20x) vs. quarter resolution (10x) input data. **g,** Performance metrics for different backbone architectures. **h,** Performance metrics vs. gold-standard annotations of the final model split by the datasets in Pan-M.



**Extended Data Fig. 2 | NIMBUS F1 score comparison for individual channels. a-e**, F1 scores for the individual channels of the data subsets of Pan-M. **f**, Receiver Operating Characteristic (ROC) curves for the individual datasets and combined Pan-M dataset.